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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,264	08/19/2003	Ravi Ramaswami	10981988-3	4670

7590 03/19/2004

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EXAMINER

MOUTTET, BLAISE L

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/643,264	Applicant(s) RAMASWAMI ET AL.	
	Examiner Blaise L Mouttet	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugitani et al. US 4,558,333.

Sugitani et al. discloses a method of making a part of a droplet plate, which part mounts to a substrate (1) that carries a heat transducer (2) and defines both a firing chamber to surround the transducer (2) and a nozzle (6P) through which liquid in the chamber may pass from the chamber (figure 7B), the method comprising the steps of:

forming the part from a single dielectric material (dry film photoresist) by depositing a first layer (3) of the dielectric material (figure 2B, column 1, lines 1-13); shaping the firing chamber in the first layer (figures 3 and 4, column 4, lines 14-53); depositing a second layer (5) of the single type (dry film photoresist) of dielectric material (figure 5, column 4, lines 54-68); and making the nozzle in the second layer (figure 6, column 5, lines 10-47).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 2-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugitani et al. US 4,558,333 in view of Hawkins et al. US 5,738,799 and Micromachined Transducers Sourcebook (pgs 77-88) by Kovacs.

Sugitani et al. discloses the claimed invention regarding claims 1 and 5 as noted in the 35 USC 102 rejection above including that the depositing step employing coating of photoresist (figure 2B, column 4, lines 1-13).

Art Unit: 2853

Sugitani et al. discloses, regarding claim 4, that the first and second layers should both be formed from a common material (column 4, lines 9-11 and column 4, lines 57-59).

Sugitani et al. discloses, regarding claim 7, simultaneously exposing the first and second layers (204, 210) by a solvent (column 5, lines 29-43)

Sugitani et al. fails to disclose, regarding claims 2, 3, 6 and 8, that the depositing step employs PECVD or deposits silicon dioxide in the first layer or selects from silicon dioxide silicon nitride, silicon carbide, amorphous silicon, silicon oxynitride and diamondlike carbon for the first and second layer.

Hawkins et al. teaches of the known equivalence of coating techniques and plasma deposition in deposition steps during the manufacture of inkjet print heads (column 3, lines 43-53) and of the known equivalence of silicon dioxide and photoresists in the formation of permanent layer walls (14) of the firing chamber of the inkjet printhead (figure 9) in the prior art.

Kovacs provides background on common deposition and micromachining techniques known to the prior art and teaches the deposition of silicon dioxide using PECVD has advantageous properties of improved control during manufacture (pg. 80-81).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to employ PECVD deposition of silicon oxide in the deposition of the first and second layers of Sugitani et al. given the teachings of Hawkins et al. and Kovacs.

The motivation for doing so would have been to achieve stress control during the manufacture as taught by page 80 of Kovacs.

**Contact Information**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet who may be reached at telephone number (571) 272-2150. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier, Art Unit 2853, can be reached at (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet February 24, 2004

Bm 2/24/2004

  
LAMSON NGUYEN  
PRIMARY EXAMINER  
3/16/04